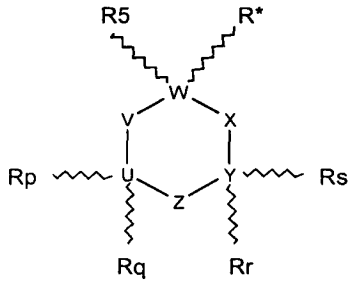
WE CLAIM:

- 1 -

A method for the prevention, treatment or relief of a state, disorder or condition resulting from hyperphosphorylation of microtubule protein *tau*, which method is useful for: (1) preventing or delaying the appearance of clinical symptoms and parameters such as neurodegeneration of the state, disorder or condition developing in a mammal that may be afflicted with or predisposed to the state, disorder or condition but does not yet experience or display clinical symptoms and parameters of the state, disorder or condition, (2) inhibiting the state, disorder or condition, i.e., arresting or reducing the development of the disease or at least one clinical symptom and parameter thereof, or (3) relieving the disease, i.e., causing regression of the state, disorder or condition or at least one of its clinical symptoms and parameters, such method comprising the step of administering, to a patient in need thereof, an effective amount of an aminocyclohexane or an aminoalkylcyclohexane.

- 2 -

The method of claim 1, wherein the aminocyclohexane or aminoalkylcyclohexane is selected from those of formula I:



wherein:

- R^* is $--(A)_n--(CR^1R^2)_m--NR^3R^4$,
- n+m = 0, 1, or 2,
- A is selected from the group linear or branched lower alkyl (C_1-C_6), linear or branched lower alkenyl (C_2-C_6), and linear or branched lower alkynyl (C_2-C_6),
- R^1 and R^2 are independently selected from the group hydrogen , linear or branched lower alkyl (C_1-C_6), linear or branched lower alkenyl (C_2-C_6), and linear or branched lower alkynyl (C_2-C_6),
- R^3 and R^4 are independently selected from the group hydrogen, linear or branched lower alkyl (C_1-C_6), linear or branched lower alkenyl (C_2-C_6), and linear or branched lower alkynyl (C_2-C_6), or together form alkylene (C_2-C_{10}) or alkenylene (C_2-C_{10}) or together with the N form a 3-7-membered azacycloalkane or azacycloalkene, including substituted (alkyl (C_1-C_6), alkenyl (C_2-C_6)) 3-7-membered azacycloalkane or azacycloalkene,
- R^5 is independently selected from the group hydrogen, linear or branched lower alkyl (C_1-C_6), linear or branched lower alkenyl (C_2-C_6), and linear or branched

lower alkynyl (C_2-C_6), or R^5 combines with the carbon to which it is attached and the next adjacent ring carbon to form a double bond,

- R_p, R_q, R_r, and R_s are independently selected from the group hydrogen, linear or branched lower alkyl (C_1-C_6), linear or branched lower alkenyl (C_2-C_6), linear or branched lower alkynyl (C_2-C_6), cycloalkyl (C_3-C_6) and phenyl, or R_p, R_q, R_r, and R_s independently may combine with the carbon to which it is attached and the next adjacent carbon to form a double bond, or R_p, R_q, R_r, and R_s may combine together to represent lower alkylene $-(CH_2)_x-$ bridge wherein x is 2-5, inclusive, which alkylene bridge may, in turn, combine with R^5 to form a additional lower alkylene $-(CH_2)_y-$ bridge, wherein y is 1-3, inclusive,

- U-V-W-X-Y-Z is selected from

  cyclohexane,

  cyclohex-2-ene,

  cyclohex-3-ene,

  cyclohex-1,4-diene,

  cyclohex-1,5-diene,

  cyclohex-2,4-diene, and

  cyclohex-2,5-diene,

and its optical isomers and pharmaceutically-acceptable acid or base addition salt thereof.

The method of claim 1, comprising the step of administering, to a patient in need thereof, an effective amount of an aminocyclohexane.

The method of claim 3, wherein the aminocyclohexane is selected from:

1-amino adamantane,

1-amino-3-phenyl adamantane,

1-amino-methyl-adamantane,

1-amino-3,5-dimethyl adamantane,

1-amino-3-ethyl adamantane,

1-amino-3-isopropyl adamantane,

1-amino-3-n-butyl adamantane,

1-amino-3,5-diethyl adamantane,

1-amino-3,5-diisopropyl adamantane,

1-amino-3,5-di-n-butyl adamantane,

1-amino-3-methyl-5-ethyl adamantane,

1-N-methylamino-3,5-dimethyl adamantane,

1-N-ethylamino-3,5-dimethyl adamantane,

1-N-isopropyl-amino-3,5-dimethyl adamantane,

1-N,N-dimethyl-amino-3,5-dimethyl adamantane,

1-N-methyl-N-isopropyl-amino-3-methyl-5-ethyl adamantane,

1-amino-3-butyl-5-phenyl adamantane,

1-amino-3-pentyl adamantane,

1-amino-3,5-dipentyl adamantane,

1-amino-3-pentyl-5-hexyl adamantane,

1-amino-3-pentyl-5-cyclohexyl adamantane,

1-amino-3-pentyl-5-phenyl adamantane,

1-amino-3-hexyl adamantane,

1-amino-3,5-dihexyl adamantane,

1-amino-3-hexyl-5-cyclohexyl adamantane,

1-amino-3-hexyl-5-phenyl adamantane,

1-amino-3-cyclohexyl adamantane,

1-amino-3,5-dicyclohexyl adamantane,

1-amino-3-cyclohexyl-5-phenyl adamantane,

1-amino-3,5-diphenyl adamantane,

1-amino-3,5,7-trimethyl adamantane,

1-amino-3,5-dimethyl-7-ethyl adamantane,

1-amino-3,5-diethyl-7-methyl adamantane,

1-amino-3-methyl-5-propyl adamantane,

1-amino-3-methyl-5-butyl adamantane,

1-amino-3-methyl-5-pentyl adamantane,

1-amino-3-methyl-5-hexyl adamantane,

1-amino-3-methyl-5-cyclohexyl adamantane,

1-amino-3-methyl-5-phenyl adamantane,

1-amino-3-ethyl-5-propyl adamantane,

1-amino-3-ethyl-5-butyl adamantane,

1-amino-3-ethyl-5-pentyl adamantane,

1-amino-3-ethyl-5-hexyl adamantane,

1-amino-3-ethyl-5-cyclohexyl adamantane,

1-amino-3-ethyl-5-phenyl adamantane,

1-amino-3-propyl-5-butyl adamantane,

1-amino-3-propyl-5-pentyl adamantane,

1-amino-3-propyl-5-hexyl adamantane,

1-amino-3-propyl-5-cyclohexyl adamantane,

1-amino-3-propyl-5-phenyl adamantane,

1-amino-3-butyl-5-pentyl adamantane,

1-amino-3-butyl-5-hexyl adamantane,

1-amino-3-butyl-5-cyclohexyl adamantane,

and their acid addition compounds.

The method of claim 1, wherein the aminocyclohexane is memantine or neramexane.

- 6 -

The method of claim 1, wherein the aminocyclohexane is an aminoalkylcyclohexane.

- 7 -

The method of claim 6, wherein the aminoalkylcyclohexane is selected from:

1-amino-1,3,5-trimethylcyclohexane,

1-amino-1(trans),3(trans),5-trimethylcyclohexane,

1-amino-1(cis),3(cis),5-trimethylcyclohexane,

1-amino-1,3,3,5-tetramethylcyclohexane,

1-amino-1,3,3,5,5-pentamethylcyclohexane,

1-amino-1,3,5,5-tetramethyl-3-ethylcyclohexane,

1-amino-1,5,5-trimethyl-3,3-diethylcyclohexane,

1-amino-1,5,5-trimethyl-cis-3-ethylcyclohexane,

1-amino-(1S,5S)cis-3-ethyl-1,5,5-trimethylcyclohexane,

1-amino-1,5,5-trimethyl-trans-3-ethylcyclohexane,

1-amino-(1R,5S)trans-3-ethyl-1,5,5-trimethylcyclohexane,

1-amino-1-ethyl-3,3,5,5-tetramethylcyclohexane,

1-amino-1-propyl-3,3,5,5-tetramethylcyclohexane,

N-methyl-1-amino-1,3,3,5,5-pentamethylcyclohexane, N-ethyl-1-amino-1,3,3,5,5-pentamethylcyclohexane, and N-(1,3,3,5,5-pentamethylcyclohexyl) pyrrolidine,

and their acid addition compounds.

- 8 -

The method of claim 1, wherein the state, disorder or condition causes neurofibrillary tangles, neuropile threads, dystrophic neruites of neuritic plaques, or Pick bodies.

- 9 -

The method of claim 1, wherein the state, disorder or condition resulting from hyperphosphorylation of microtubule protein *tau*, is selected from the group: amyotrophic lateral sclerosis, parkinsonism-dementia, argyrophilic grain dementia, British type amyloid angiopathy, corticobasal degeneration, dementia pugilistica, autism with self-injury behavior, Down's syndrom, FTDP-17, Gerstmann-Straussler-Scheinker disease, Hallenvorden-Spatz disease, inclusion body myositis, multiple system atrophy, myotonic dystrophy, Niemann-Pick disease type C, Pick's disease, presenile dementia, prion protein cerebral amyloid angiopathy, progressive supranuclear palsy, progressive subcortical gliosis, post-encephalitic parkinsonism, subacute sclerosing panencephalitis, tangle only dementia, dementia in Alzheimer's Disease, Parkinson's disease, spasticity, AIDS dementia, neuropathic pain, cerebral ischemia, epilepsy, glaucoma, hepatic encephalopathy, multiple sclerosis, stroke, tardive dyskinesia, drug tolerance, opiate/alcohol dependence, thermal hyperalgesia, mechanical allodynia, and may also possess immunomodulatory, antimalarial, anti-Borna virus, and anti-Hepatitis C activities, such method comprising the step of administering, to a patient in need thereof, an effective amount of an aminocyclohexane or an aminoalkylcyclohexane.

- 10 -

The method of claim 1, wherein such state, disorder, or condition results from hyperphosphorylation of microtubule protein *tau*, and wherein the state, disorder or condition is selected from the group: frontotemporal dementia with parkinsonism linked to chromosome 17 (FTDP-17), corticobasal degeneration (CBD), progressive supranuclear palsy (PSP), progressive subcortical gliosis (PSG), Pick's disease (PiD), Niemann-Pick type C (NPC) neurodegenerative storage disease, and Argyrophilic Grain disease, such method comprising the step of administering, to a patient in need thereof, an effective amount of memantine or neramexane.

- 11 -

A method for decreasing the abnormal hyperphosphorylation of microtubule protein *tau* in a mammal, such method comprising administering to said mammal an effective amount of an aminocyclohexane or an aminoalkylcyclohexane.

- 12 -

The method of claim 11, wherein the aminocyclohexane or aminoalkylcyclohexane is selected from memantine or neramexane.

- 13 -

The method of claim 12, wherein memantine or neramexane is administered in the amount of 5 to 200 mg/kg.

- 14 -

The method of claim 12, wherein the abnormal hyperphosphorylation of microtubule protein *tau* is decreased by 20-50%.

- 15 -

The method of claim 12, wherein the abnormal hyperphosphorylation of microtubule protein *tau* is decreased at Ser-262, Ser-212, and Ser-414.

- 16 -

A method for the decreasing neurofibrillary tangles, neuropile threads, dystrophic neruites of neuritic plaques, or Pick bodies in a mammal, such method comprising administering to said mammal an effective amount of mamantine or neramexane.